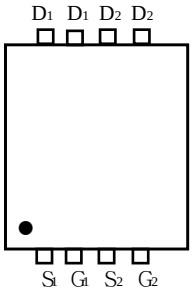
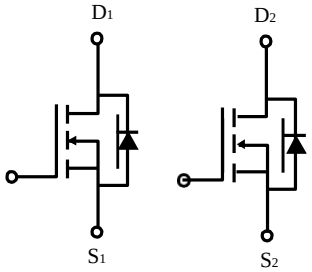
Dual N-Channel High Density Trench MOSFET

FEATURES

- Super high dense cell trench design for low $R_{DS(on)}$.
- Rugged and reliable.
- Surface Mount package.

PDFN3x3





PRODUCT SUMMARY		
$V_{(BR)DSS}$	$R_{DS(ON)}$	ID
60V	10.5mΩ	29A

PARAME TERS TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gata-Source voltage		VGS	±20	V
Continuous Drain current	TC = 25℃	ID	29	A
	TC = 100 ℃		23	
Puised Drain Current[1]		IDM	58	
Avalanche Current		IAS	30	
Avalanche Energy	L=0.5mH	EAS	45	mJ
Power Dissipation	TC = 25 ℃	PD	20.8	W
	TC = 100 ℃		13	
Operaing junction & Storege Temperature Range		Ts,Tstg	-55 to 150	℃

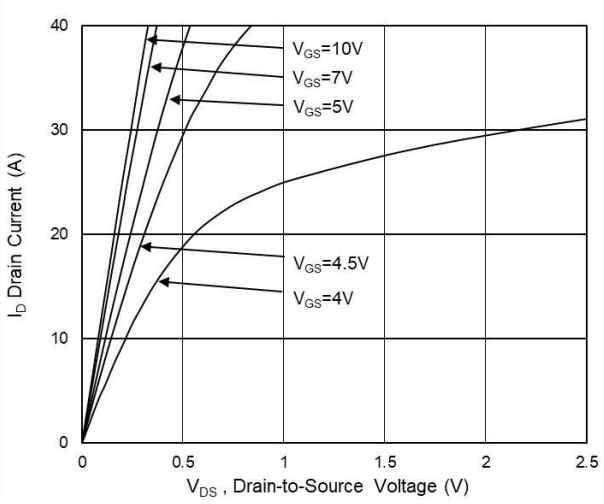
THERMAL CHARACTERISTICS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	RθJc		6	℃ /W
Junction-to-Ambient	RθJA		62.5	℃ /W

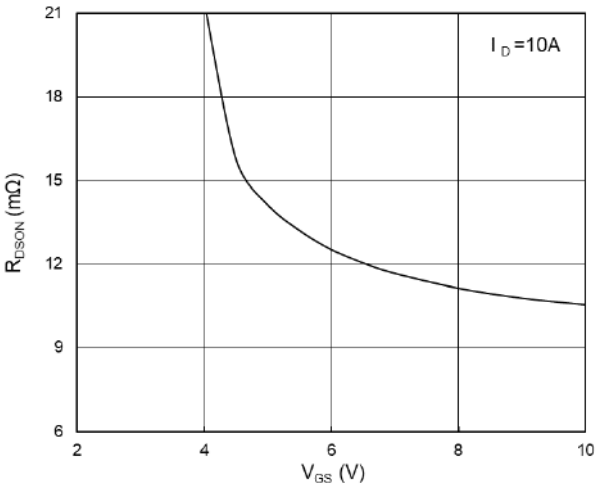
PARAMETER	SYNBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
STATIC						
Drain-Source Breakdown Voltege Gate	V(BR)DSS	VGS=0V,ID=250μA	60			V
Threshold Voltage	VGS(th)	VDS=VGS,ID=250μA	1	2	2.5	V
Gate-Body Leakage	IGSS	VDS=0V,VGS=± 2 0V			±100	nA
Zero Gate Voltage Dain Current	IDSS	VDS=48V,VGS=0 V			1	μA
		VDS=48V,VGS=0V,TJ=55 °C			10	μA
Drain-Source On- State Resistance1	RDS(ON)	V_{GS}=10V,I_D=10A		10.5	15	mΩ
		V_{GS}=4.5V,I_D=10A		15.7	21	mΩ
Forward Trans conductance[1]	gfs	V_{DS}=5V,I_D=10A		18		S
DYNAMIC						
Input Capacitance Output	Ciss	VGS=0V,VDS=30V,f=1MHZ		760		pF
Capacitance	Coss			272		pF
Reverse Transfer Capacitance Gate	Crss			26		pF
Resistance	RG	VGS=0V,f=1MHZ		1		Ω
Total Gate Charge[2]	Qg(vgs=10V)	VDS=30V (BR)DSS, ID = 10A		15.8		nC
	Qg(vgs=4.5V)			8.7		nC
Gate Source Charge[2]	QgS(VGS=10V)			3.1		nC
Gate-Drain Charge[2]	Qgd(VGS=10V)			4.4		nC
Tum-On Delay Time[2]	td(on)	VDS=30V, ID=10A,VGS=10V.RGS=3.3Ω		5.8		nS
Rise Time[2]	t r			3.5		nS
Tum-Off Delay Time[2]	td(off)			26		nS
Fall Time[2]	t r			3.2		nS
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS(TJ=25°C)						
Continuous Current	IS			29		A
Forward Voltage[1]	VSD	IF=IS,VGS=0V		0.75	1.2	V
Reverse Recovery Time	Trr	IF=20V,d1f/dt=100A/μs		28		nS
Reverse Recovery Charge	Qrr			18		nC

Note
b. Pulse Test Pulse width ≤ 300usec , Duty Cycle ≤ 2% .
c. Independent of operating production testing .

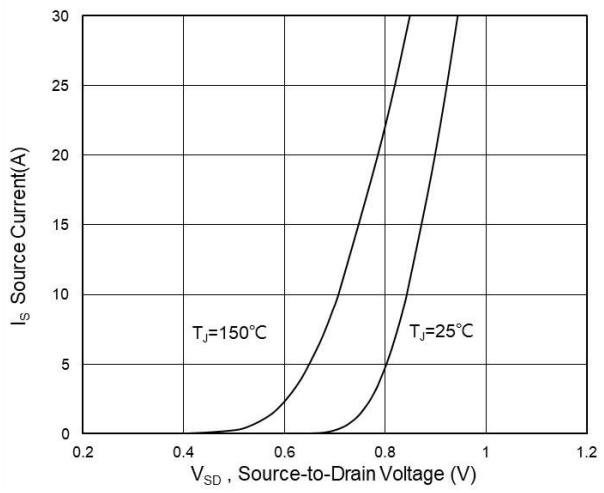
Typical Characteristics



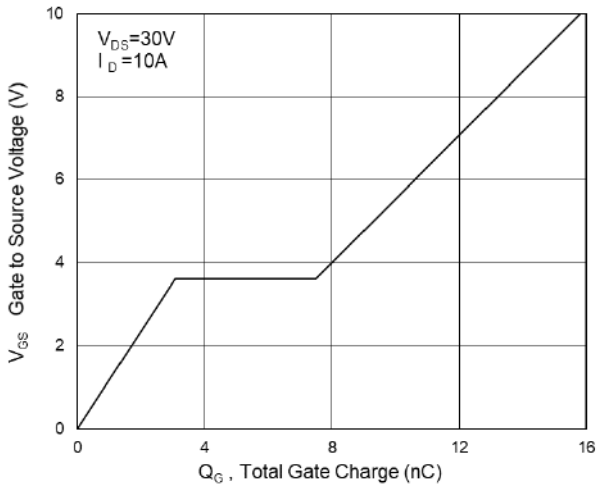
Typical Output Characteristics



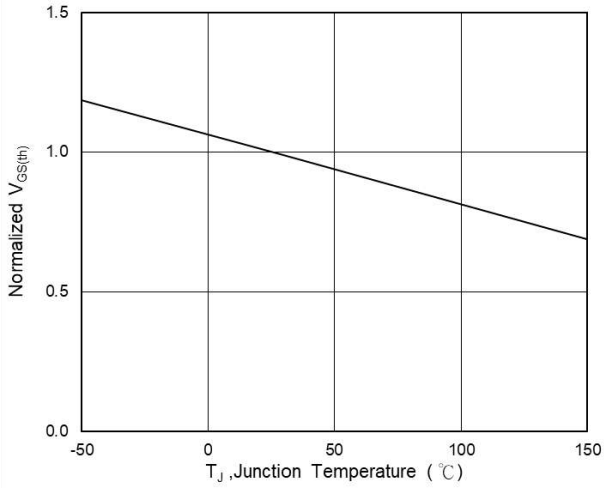
On -Resistance vs G-S Voltage



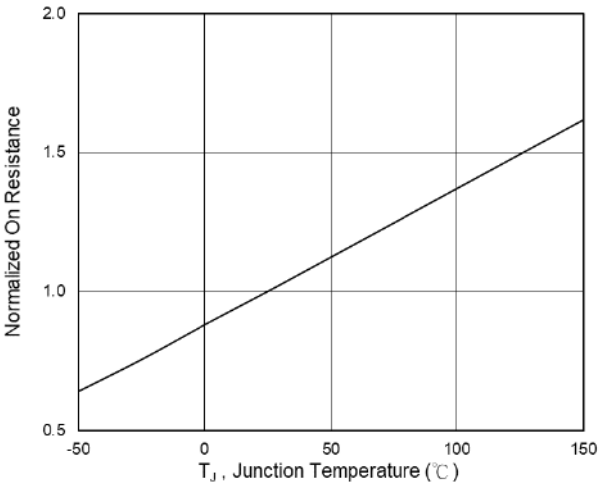
Source Drain Forward Characteristics



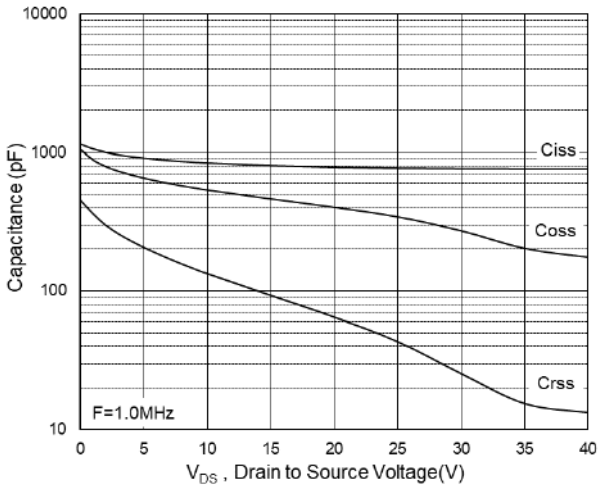
Gate-Charge Characteristics



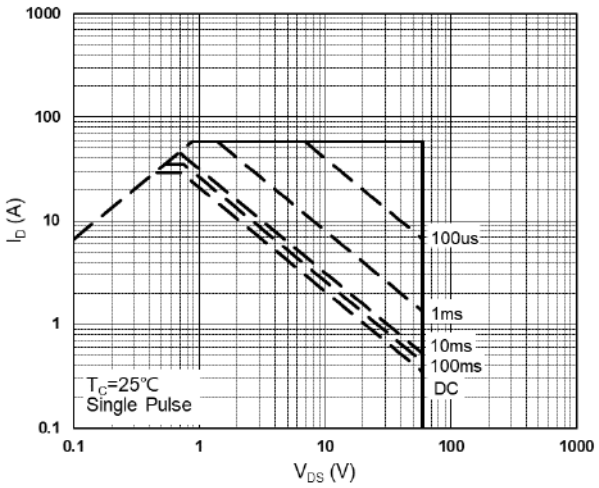
Normalized $V_{GS(th)}$ vs T_J



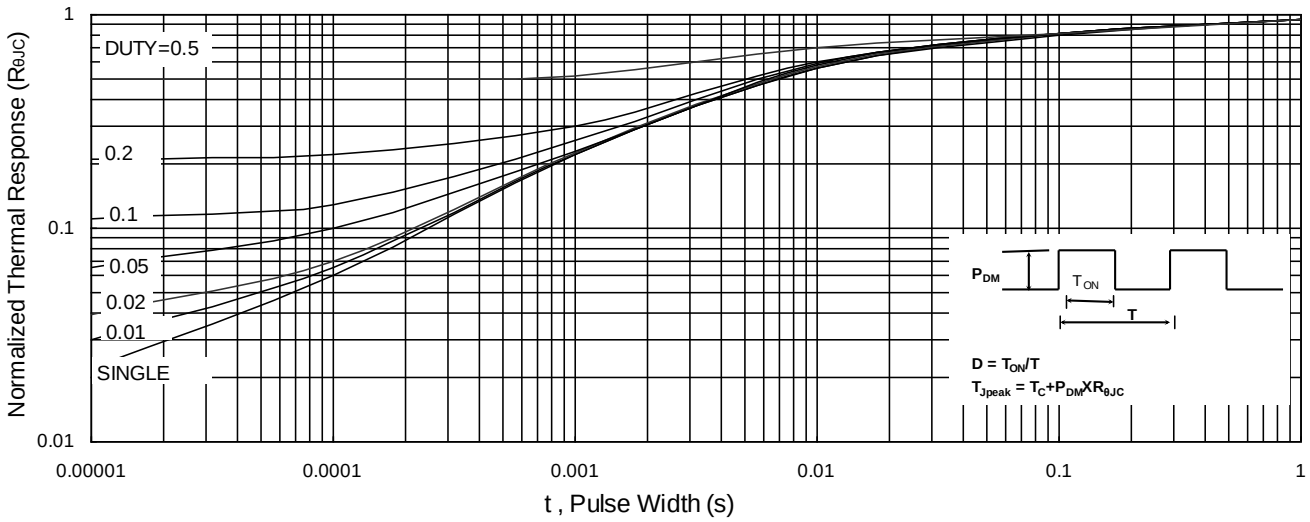
Normalized R_{DSON} vs T_J



Capacitance



Safe Operating Area



Normalized Maximum Transient Thermal Impedance